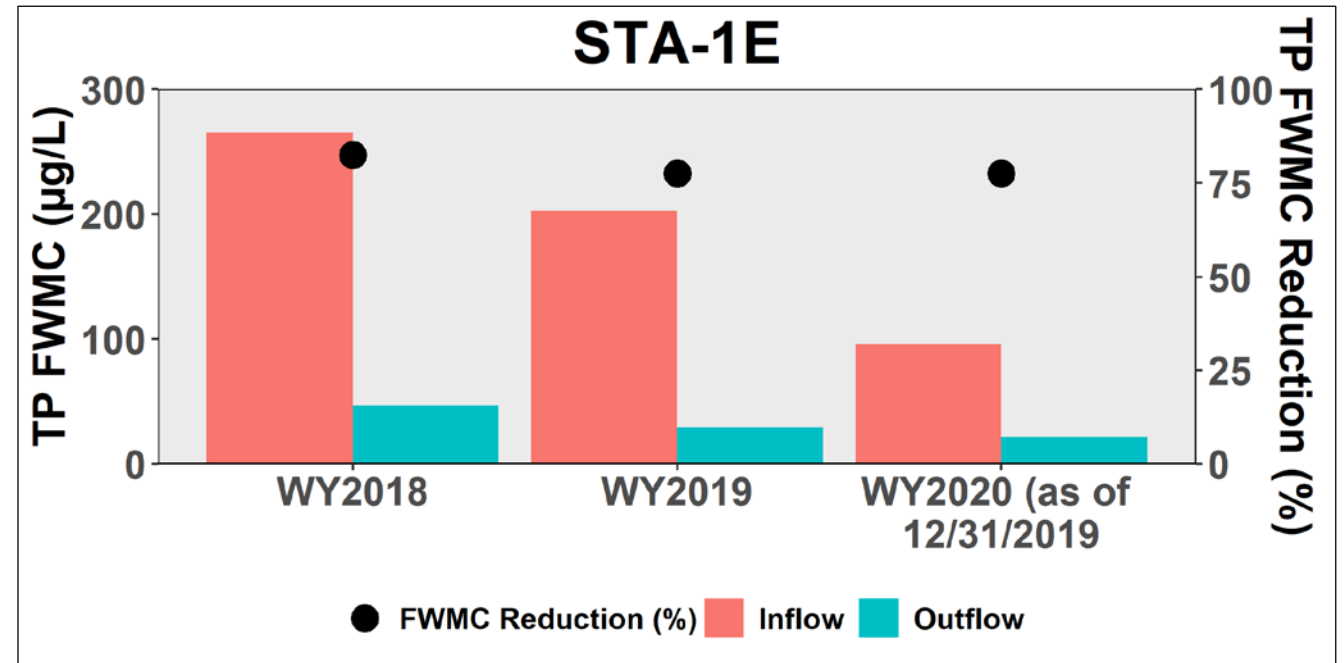
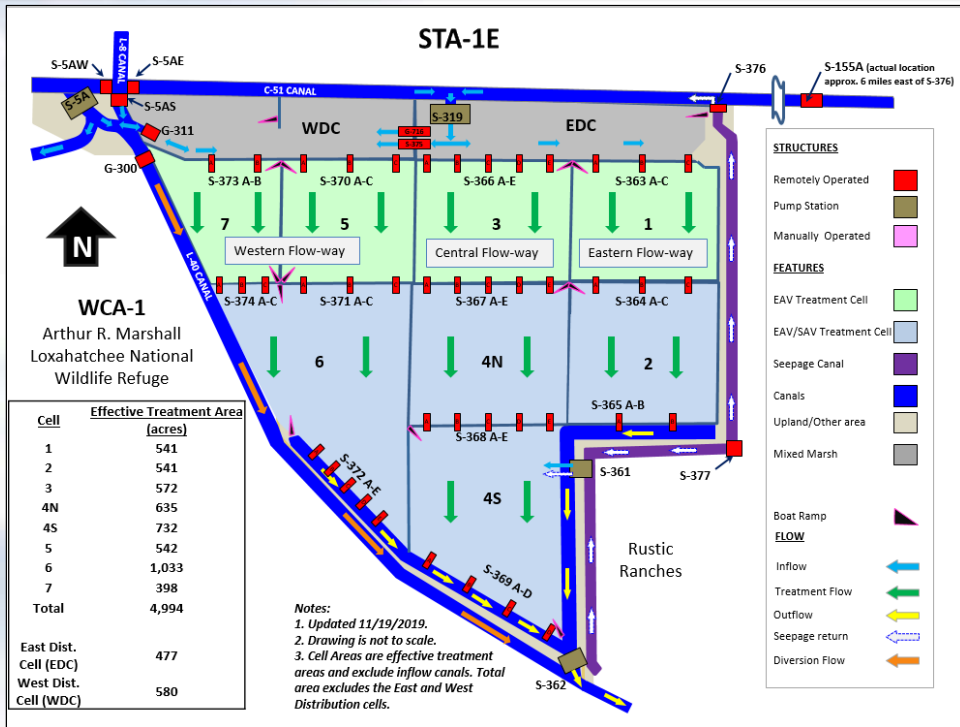


# Everglades Stormwater Treatment Areas Performance Update

Jake Dombrowski  
Scientist 4  
Applied Sciences Bureau

17<sup>th</sup> Annual Public Meeting on the Long-Term Plan  
for Achieving Water Quality Goals for the  
Everglades Protection Area Tributary Basins  
February 24, 2020

# STA-1E Performance Comparison by WY

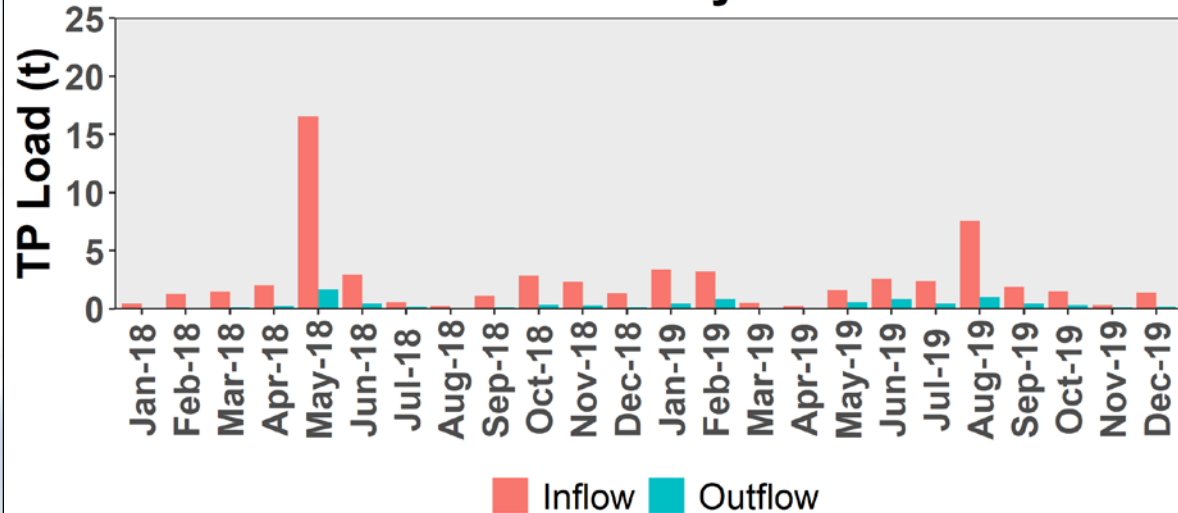


*Includes preliminary data*

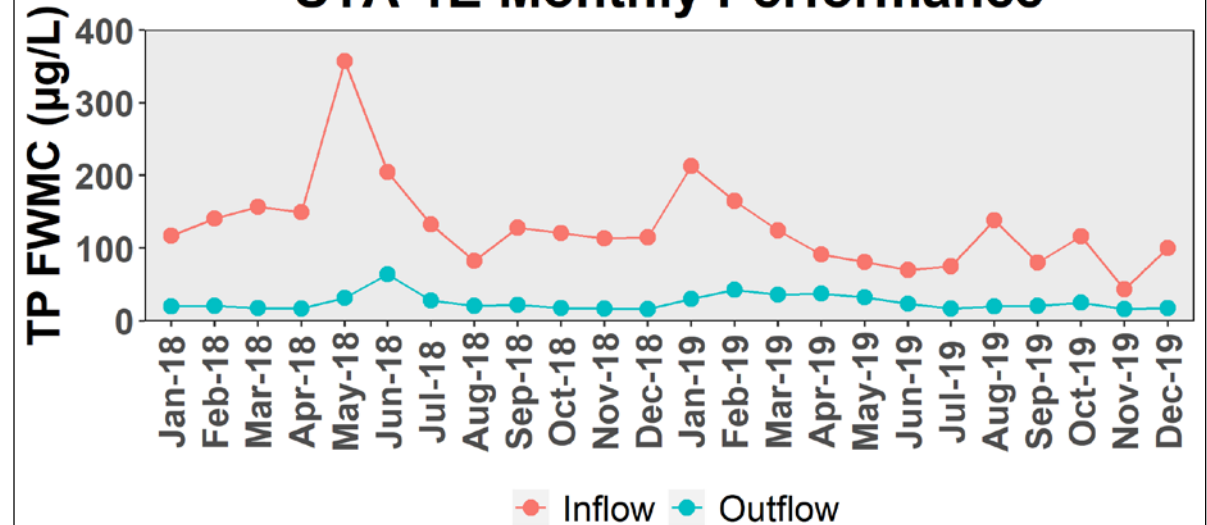
	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
Total inflow (k acre-feet)	161	140	162
Lake releases (k acre-feet)	17	46	6
TP FWMC inflow / outflow (µg/L)	265 / 46	203 / 30	96 / 21
TP load inflow / outflow (tons)	53 / 10	35 / 5	19 / 4
Reduction in TP FWMC / load	82% / 81%	78% / 80%	78% / 80%

# STA-1E Monthly TP Load and FWM Concentration

## STA-1E Monthly TP Load



## STA-1E Monthly Performance



- Inflow TP load spikes due to storm events in May 2018 and August 2019
- Decreasing trend in outflow monthly FWMCs since February 2019

*Includes preliminary data*

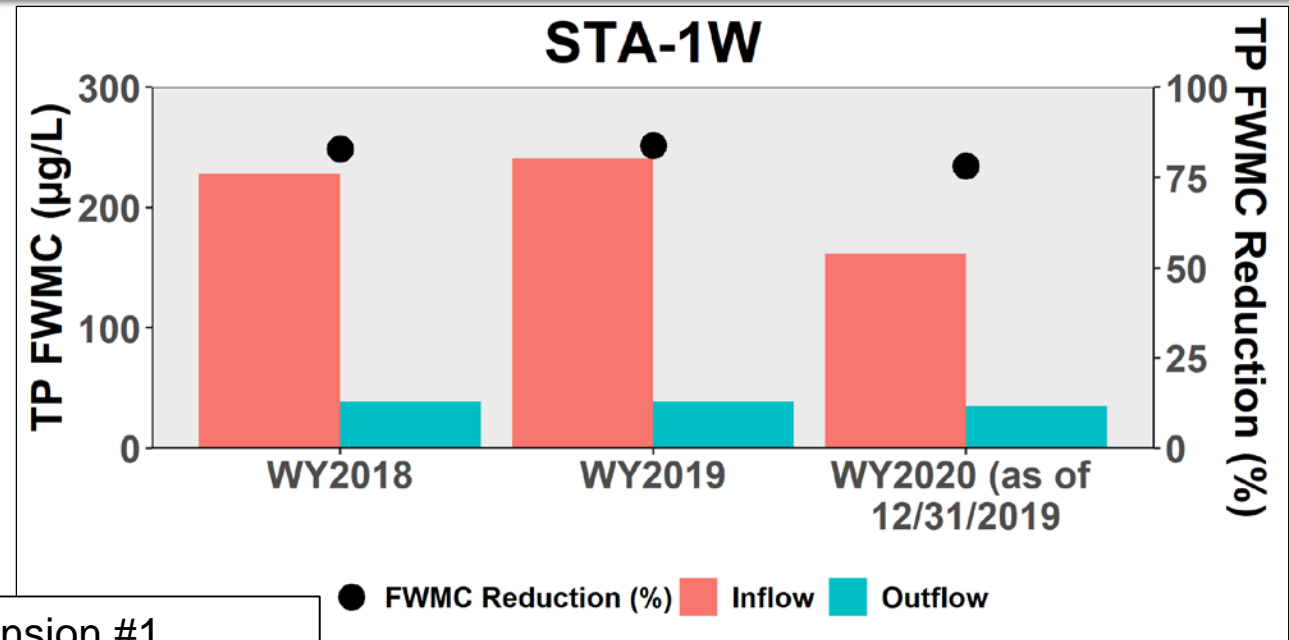
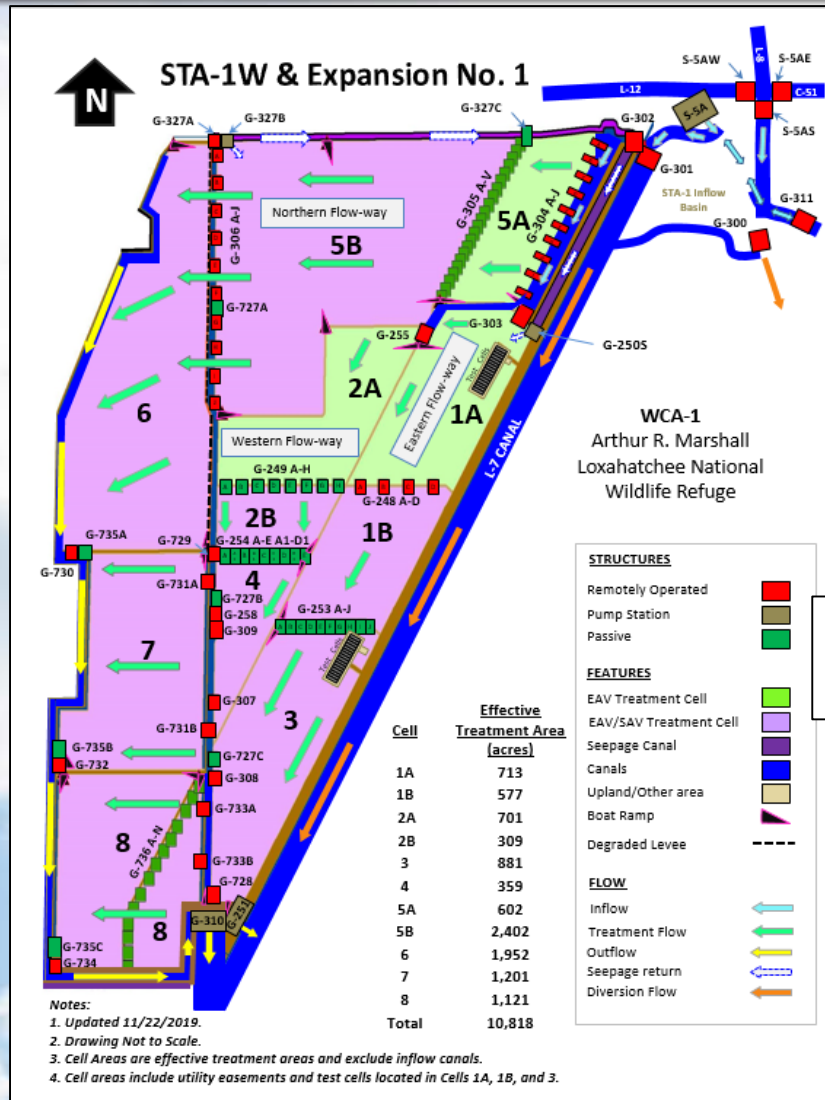
# STA-1E Highlights

(Jan. 1, 2019 – Dec. 31, 2019)



- Western flow-way offline
  - WDC levee repairs, initiation of Restoration Strategies project to fill and grade Cells 5 and 7
- Periodic restrictions in all three flow-ways
  - Vegetation management activities: spraying, inoculation, and planting
  - Snail kites nested in Cell 1 and Black-necked stilts nested in Cells 2, 5, 6, and 7

# STA-1W Performance Comparison by WY



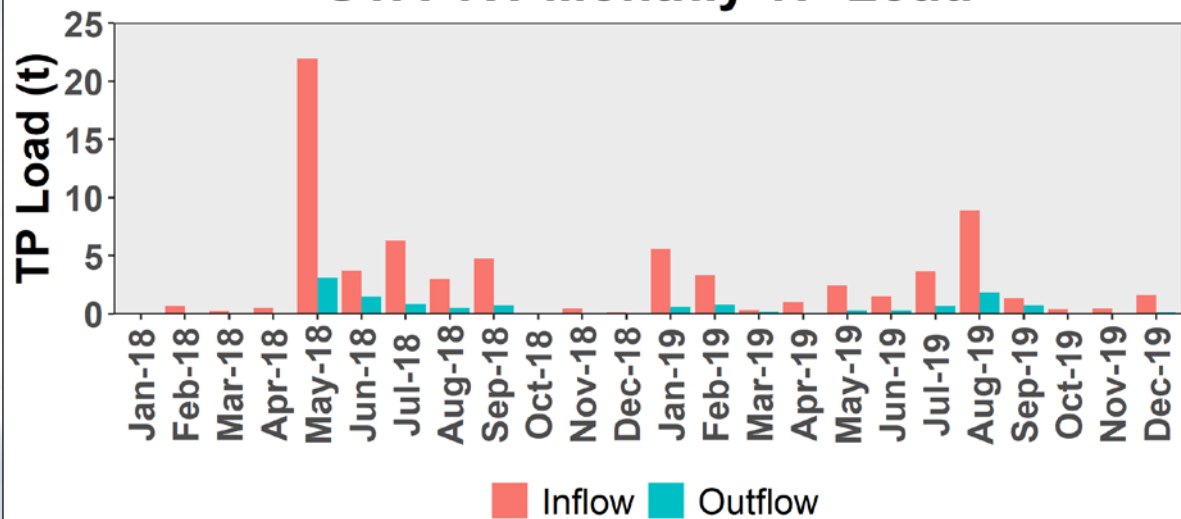
STA-1W Expansion #1 performance data not shown

	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
<b>Total inflow (k acre-feet)</b>	195	170	101
<b>Lake releases (k acre-feet)</b>	17	26	7
<b>TP FWMC inflow / outflow (µg/L)</b>	228 / 39	241 / 39	161 / 35
<b>TP load inflow / outflow (tons)</b>	55 / 11	50 / 8	20 / 4
<b>Reduction in TP FWMC / load</b>	83% / 80%	84% / 84%	78% / 80%

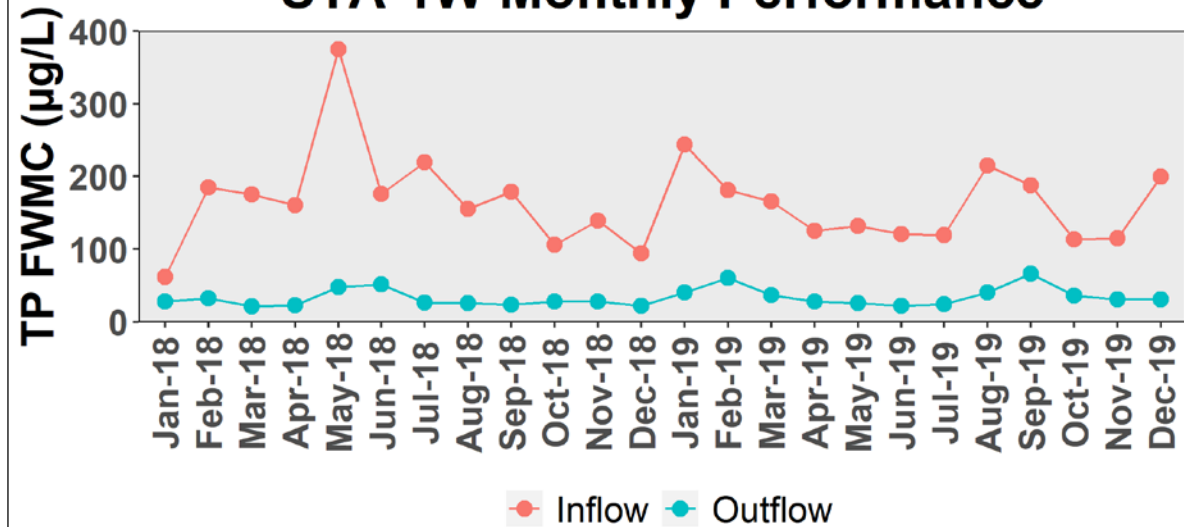
*Includes preliminary data*

# STA-1W Monthly TP Load and FWM Concentration

## STA-1W Monthly TP Load



## STA-1W Monthly Performance



- Inflow TP load spikes due to storm events in May 2018 and August 2019
- Decreasing trend in outflow monthly FWMCs since September 2019 despite variable inflow monthly FVMC

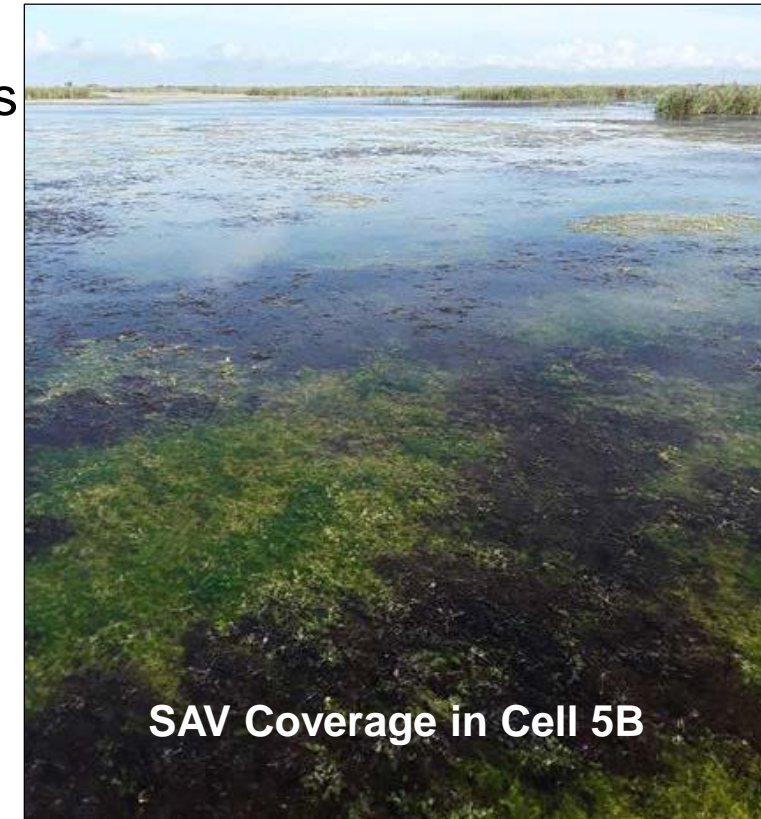
*Includes preliminary data*

# STA-1W Highlights (Jan. 1, 2019 – Dec. 31, 2019)

- Periodic restrictions in all three flow-ways
  - Construction activities related to the STA-1W Expansion #1
    - Construction complete, start-up passed October 2019
    - Northern FW online with restrictions as expansion is finalized
  - Vegetation management activities: spraying, inoculations, plantings
  - Black-necked stilts nested in Cell 5B

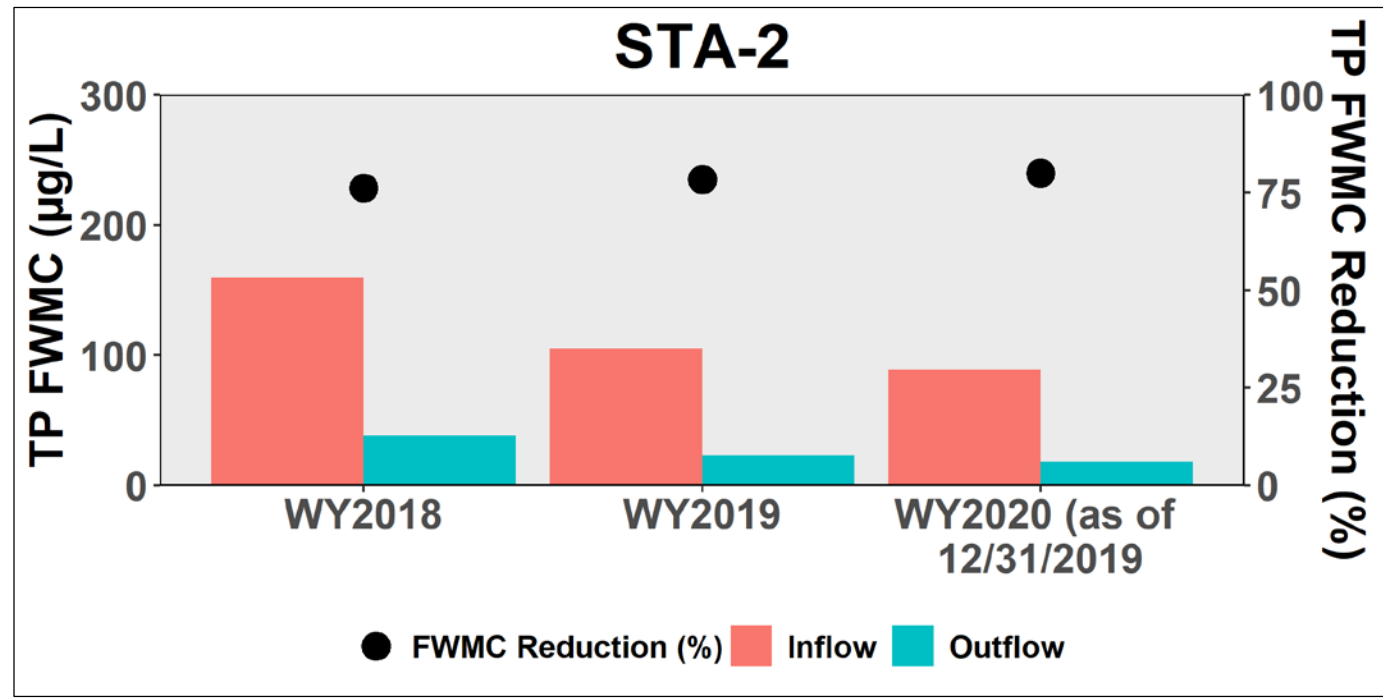
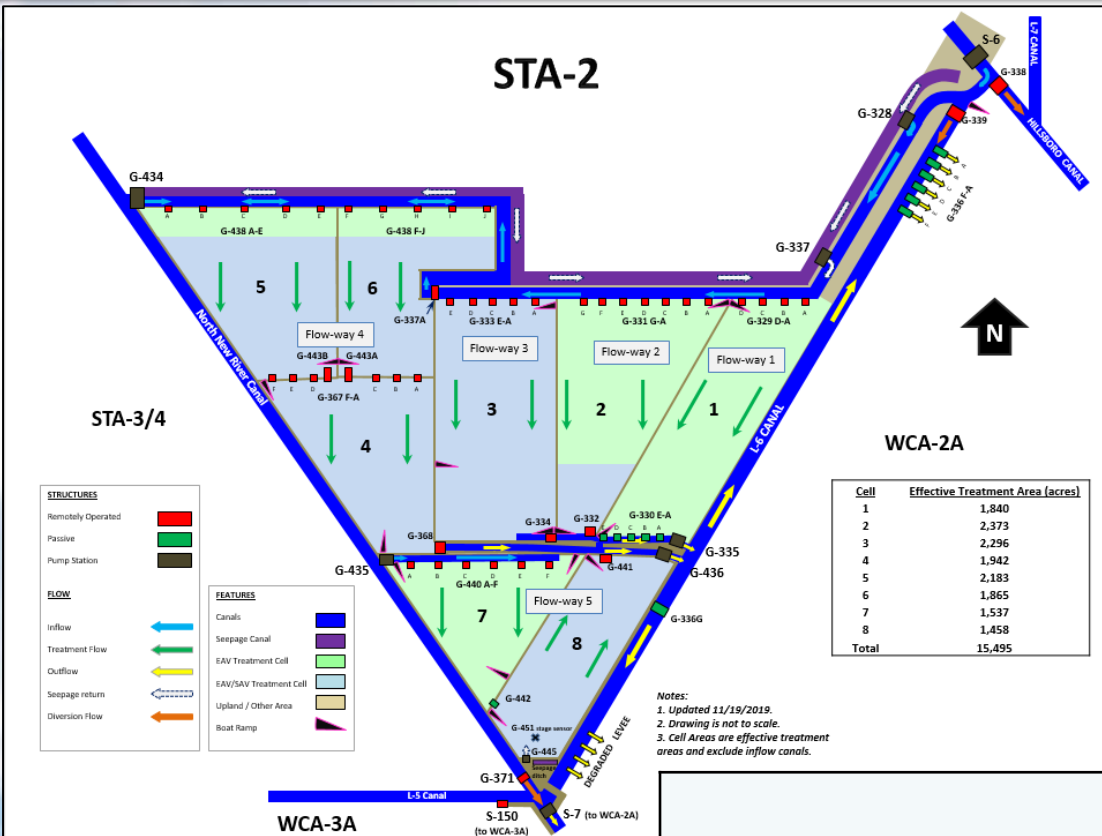


STA-1W Expansion Cell 6



SAV Coverage in Cell 5B

# STA-2 Performance Comparison by WY



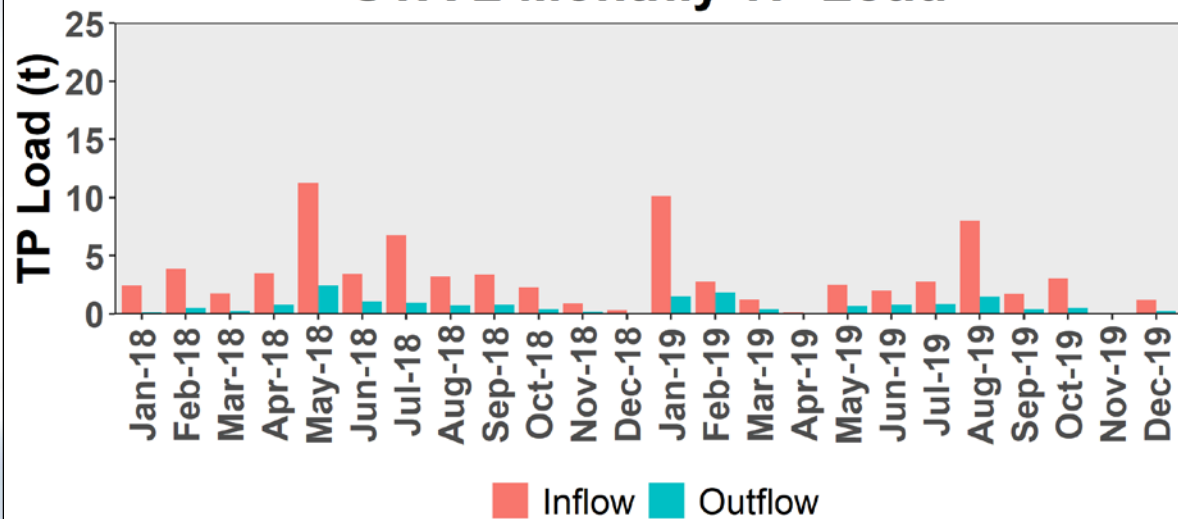
	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
Total inflow (k acre-feet)	438	354	193
Lake releases (k acre-feet)	59	122	18
TP FWMC inflow / outflow (µg/L)	160 / 38	105 / 23	89 / 18
TP load inflow / outflow (tons)	86 / 24	46 / 10	21 / 5
Reduction in TP FWMC / load	76% / 72%	78% / 77%	80% / 77%

Includes preliminary data

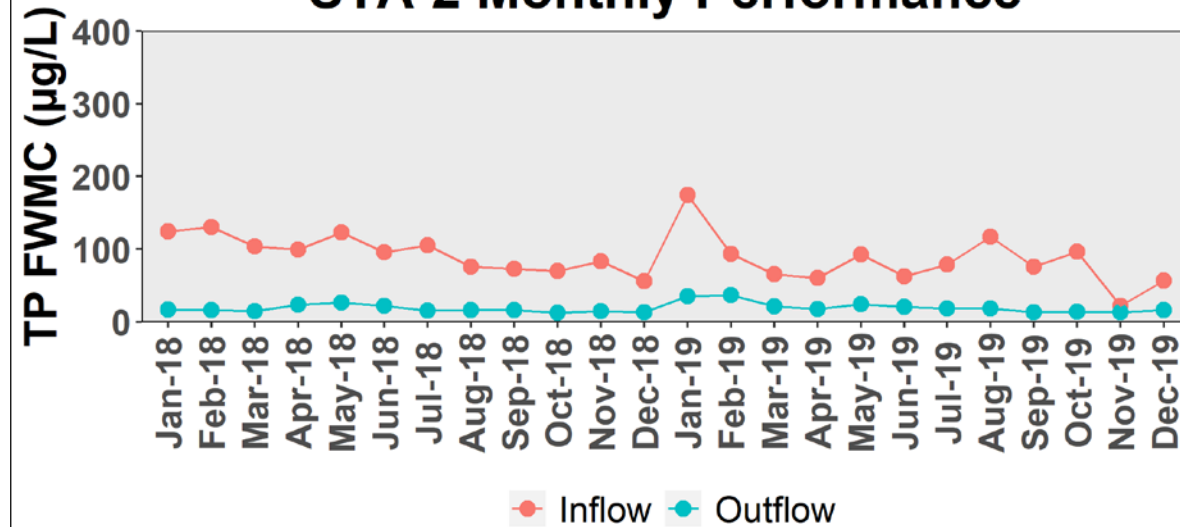


# STA-2 Monthly TP Load and FWM Concentration

## STA-2 Monthly TP Load



## STA-2 Monthly Performance



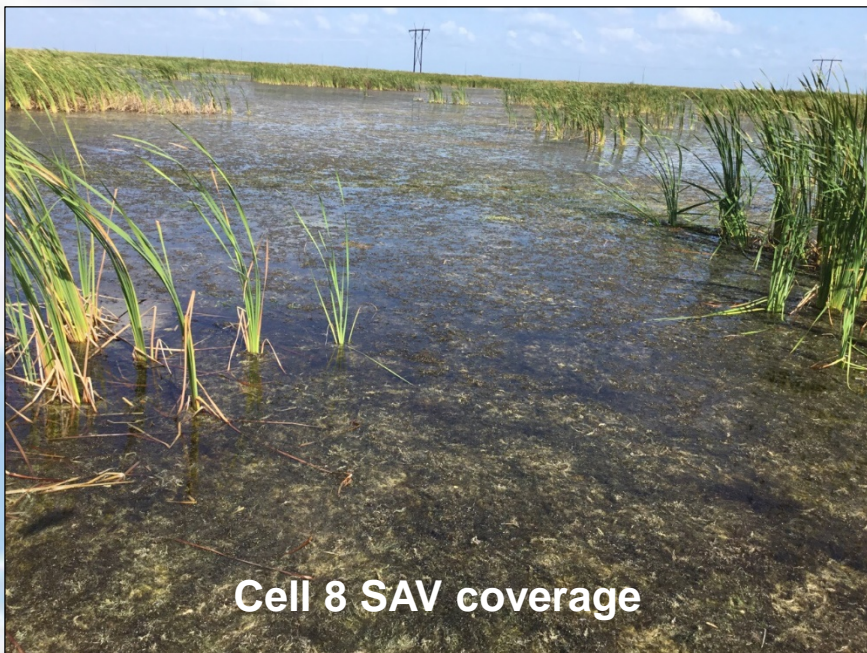
- Inflow TP load spikes due to storm events in May 2018, January 2019, and August 2019
- Decreasing trend in inflow monthly FWMCs since January 2018
- Decreasing trend in outflow TP monthly FWMCs since February 2019

*Includes preliminary data*

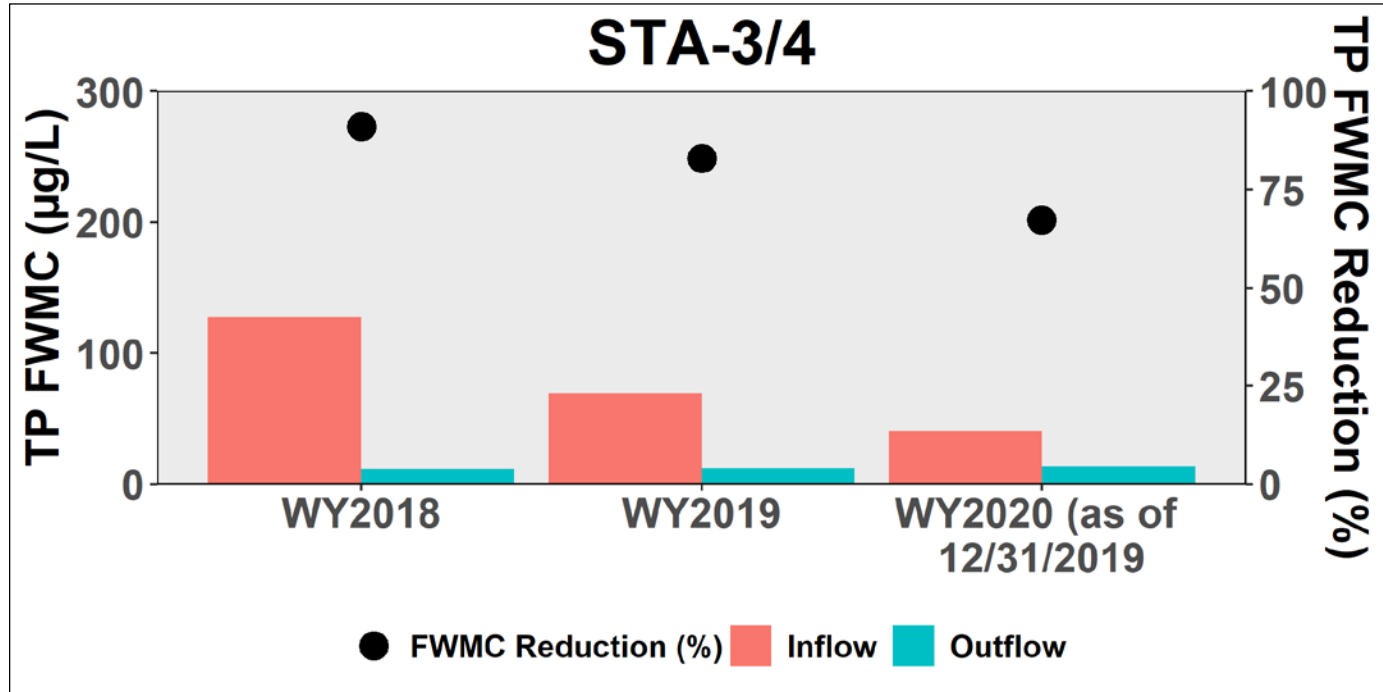
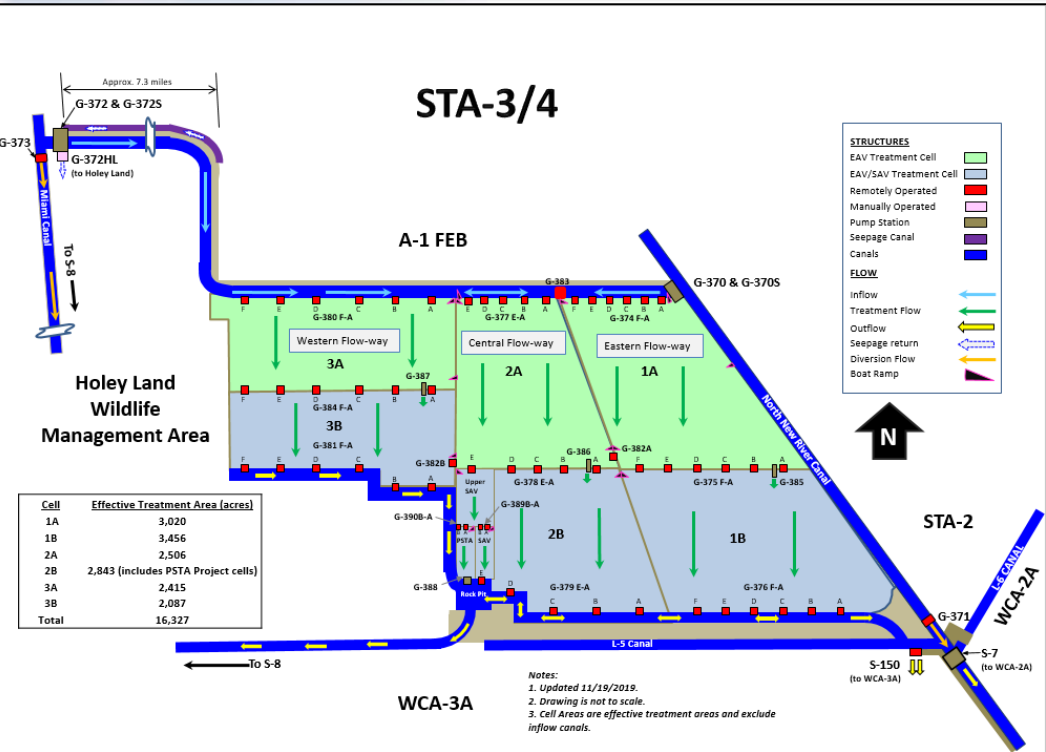
# STA-2 Highlights

(Jan. 1, 2019 – Dec. 31, 2019)

- All flow-ways were operational
- Periodic restrictions in flow-ways 2, 3, and 4
  - Vegetation management activities: spraying, inoculations, plantings, tussock removal
  - Black-necked stilts nested in Cell 3



# STA-3/4 Performance Comparison by WY

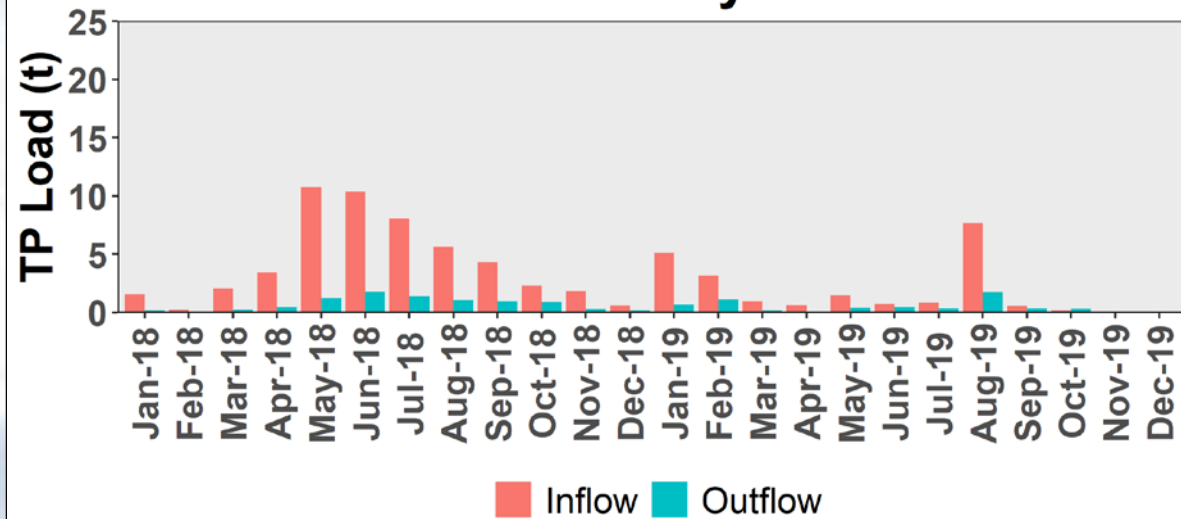


	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
Total inflow (k acre-feet)	550	627	232
Lake releases (k acre-feet)	46	206	11
TP FWMC inflow / outflow (µg/L)	128 / 12	69 / 12	40 / 13
TP load inflow / outflow (tons)	87 / 9	54 / 10	11 / 4
Reduction in TP FWMC / load	91% / 90%	83% / 82%	67% / 68%

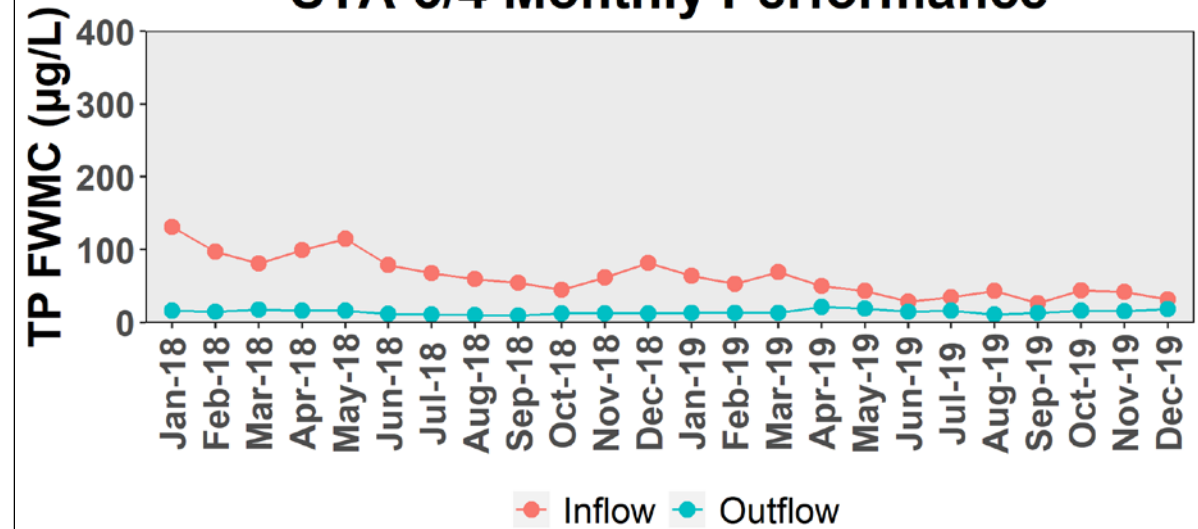
Includes preliminary data

# STA-3/4 Monthly TP Load and FWM Concentration

## STA-3/4 Monthly TP Load



## STA-3/4 Monthly Performance



- Compared to other STAs, less variability in inflow TP loads due to A-1 FEB
- Decreasing trend in inflow monthly FWMCs since January 2018
- Stable outflow TP monthly FWMCs

*Includes preliminary data*

# STA-3/4 Highlights (Jan. 1, 2019 – Dec. 31, 2019)

- All flow-ways were operational
- Periodic restrictions
  - Special operations for Science Plan studies
  - Vegetation management activities: spraying, tussock removal
  - Black-necked stilts nested in the PSTA cell

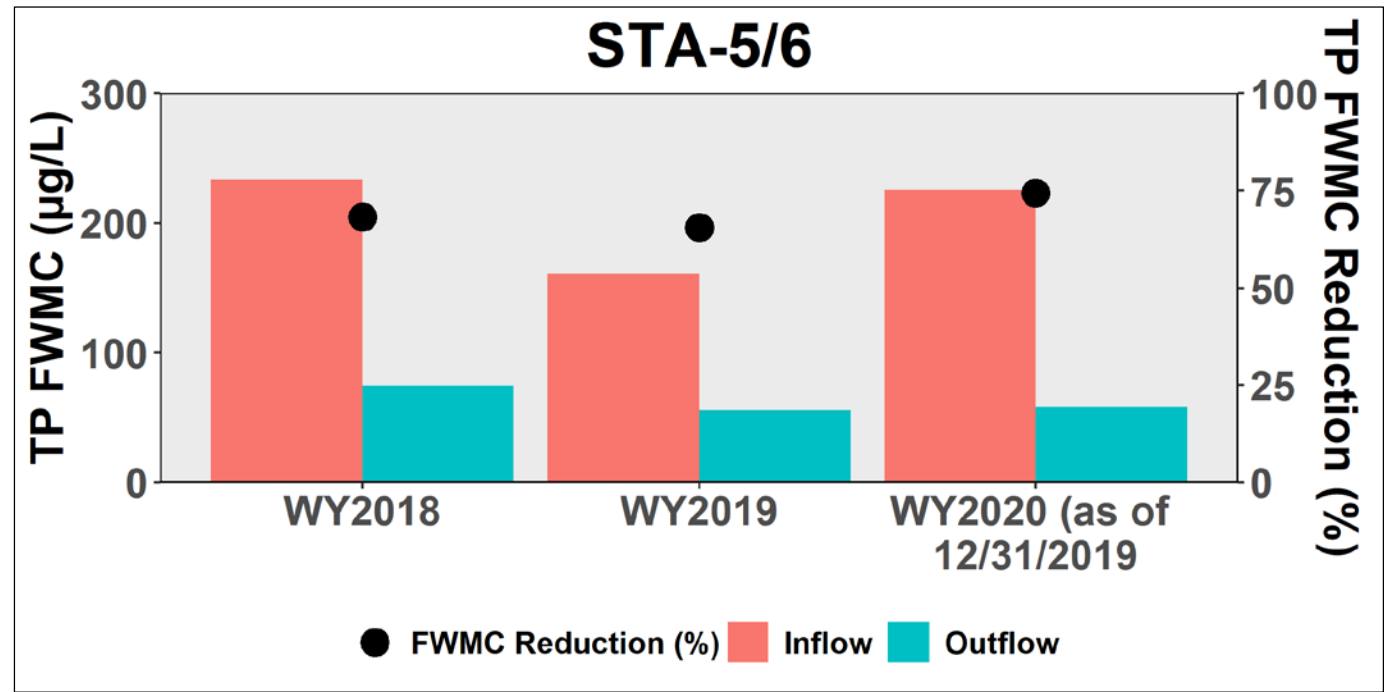
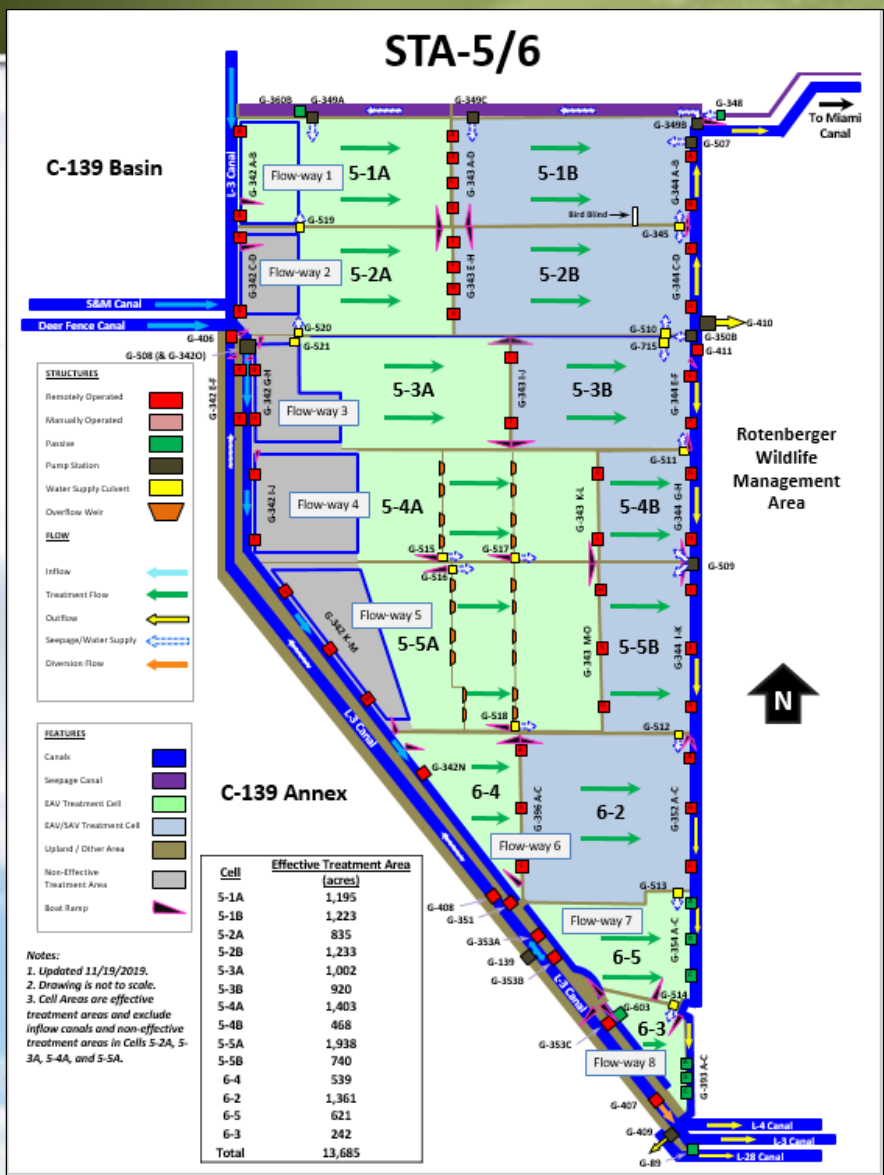


Cell 3B SAV coverage



Cell 3B mixed marsh

# STA-5/6 Performance Comparison by WY

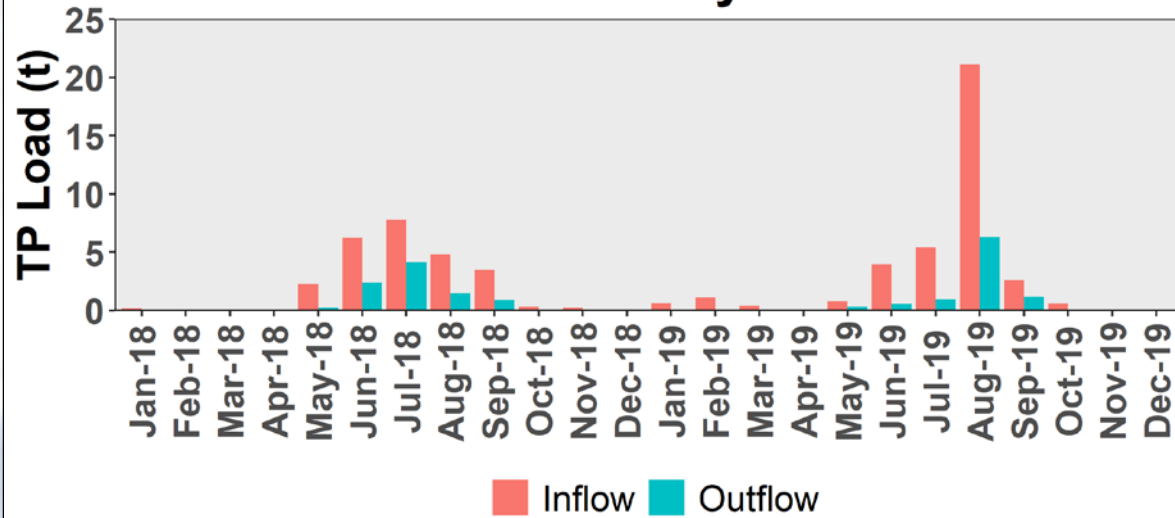


	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
Total inflow (k acre-feet)	270	137	124
TP FWMC inflow / outflow (µg/L)	234 / 74	161 / 56	226 / 58
TP load inflow / outflow (tons)	78 / 30	27 / 9	35 / 9
Reduction in TP FWMC / load	68% / 62%	65% / 66%	74% / 73%

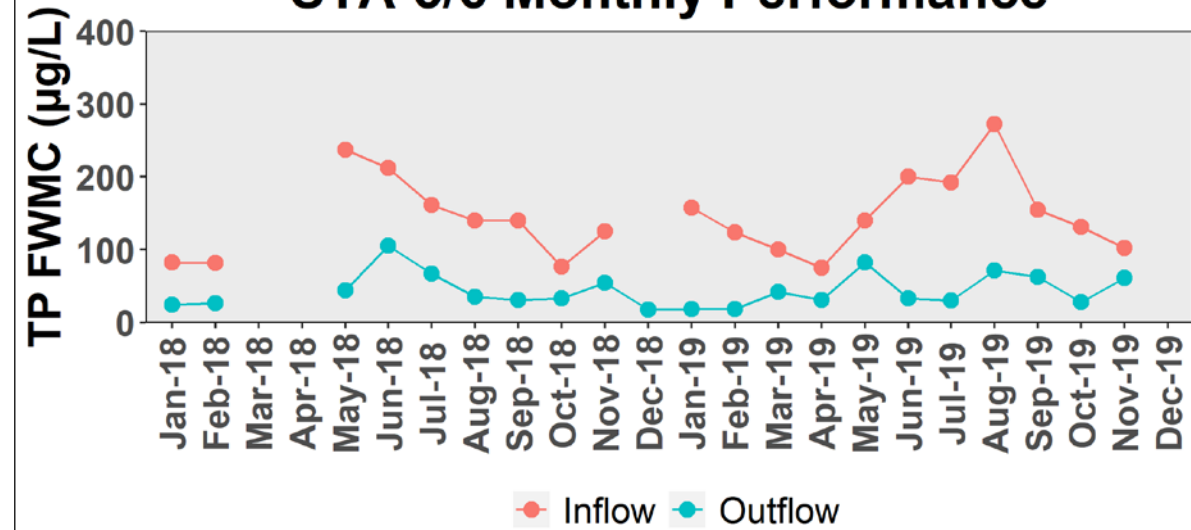
*Includes preliminary data*

# STA-5/6 Monthly TP Load and FWM Concentration

**STA-5/6 Monthly TP Load**



**STA-5/6 Monthly Performance**



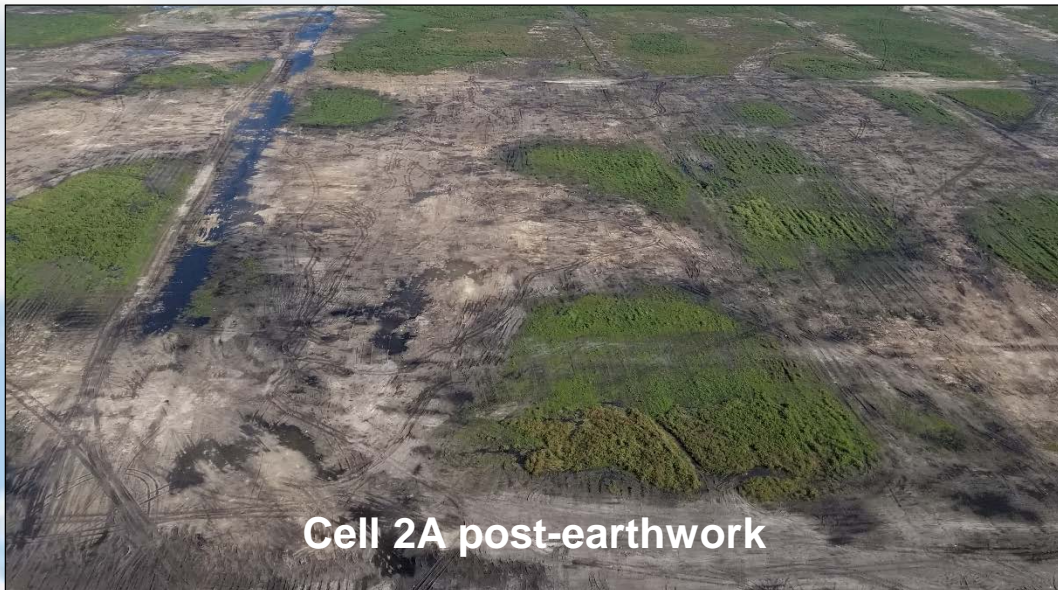
- Inflow TP load spike due to storm event in August 2019
- Frequent dry-out conditions during the dry seasons

*Includes preliminary data*

# STA-5/6 Highlights (Jan. 1, 2019 – Dec. 31, 2019)

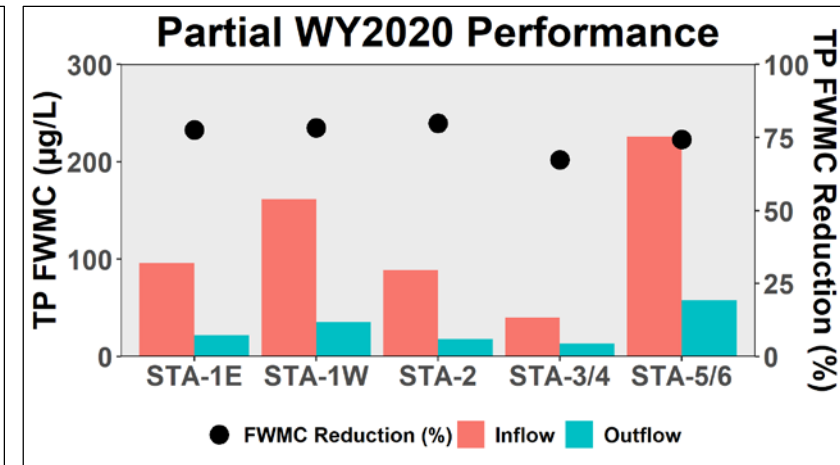
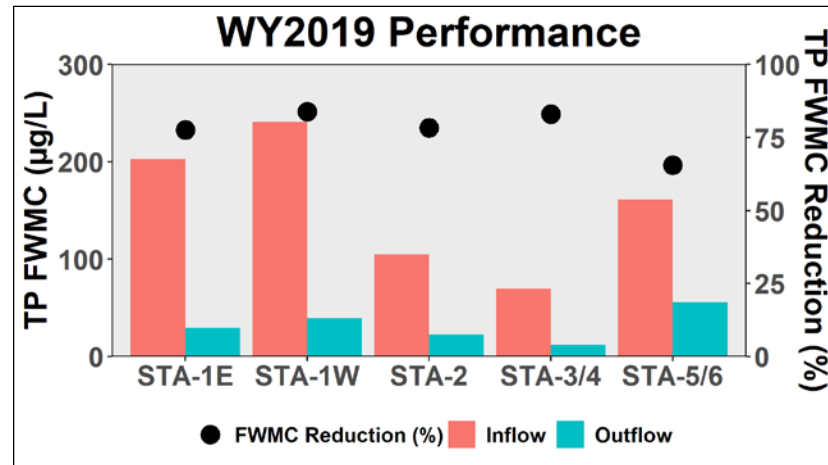
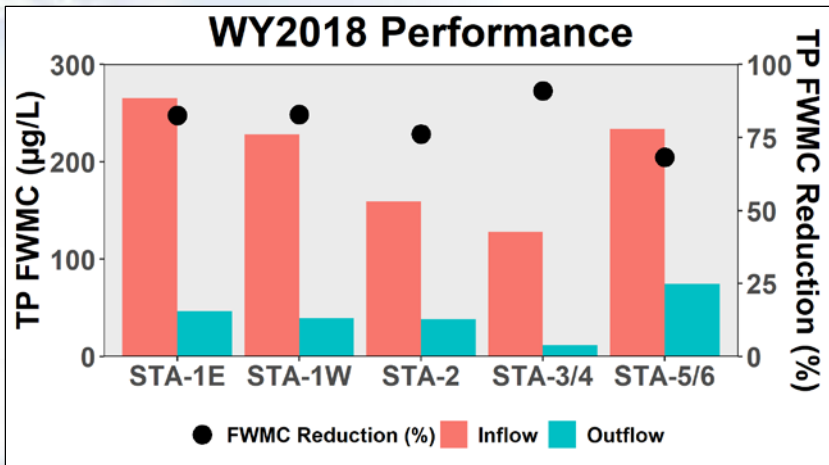
## ➤ Periodic restrictions

- Flow-ways 2 and 3 offline for Restoration Strategies earthwork project
  - Project complete December 2019
- Burrowing owls nested in Cell 3A
- Black-necked stilts nested in Cells 3A, 3B, 4A, 4B, 5A, 5B





# All STAs Performance Comparison by WY



	WY2018	WY2019	Partial WY2020 (05/01/2019 - 12/31/2019)
Total inflow (k acre-feet)	1600	1400	800
Lake releases (k acre-feet)	160	470	70
TP FWMC inflow / outflow (µg/L)	180 / 36	120 / 23	106 / 26
TP load inflow / outflow (tons)	358 / 83	212 / 42	107 / 26
Reduction in TP FWMC / load	80% / 77%	81% / 80%	76% / 76%

*Includes preliminary data*

# Questions

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